

What is claimed is:

1. An apparatus for liquid-liquid extraction configured to accommodate at least a first liquid phase and a second liquid phase, comprising:
 - a settler compartment having a top and a bottom;
 - a first weir located in said settler compartment, and;
 - a second weir located in said settler compartment adjacent said first weir, wherein said first weir includes a front wall with an inlet opening, and said second weir includes a labyrinth section having an inlet opening and at least a first and second partition extending from said settler compartment bottom and at least a third partition extending from said settler compartment top and located between said first and second partition.
2. The apparatus of claim 1, wherein said first weir is an organic weir for collecting the organic phase and said second weir is an aqueous weir for collecting the aqueous phase.
3. The apparatus of claim 2, wherein said settler compartment allows the organic phase and the aqueous phase to coalesce into a top organic phase having a free liquid surface and a bottom aqueous phase, and to form an organic-aqueous interface, and wherein the inlet opening is located above where the organic-aqueous interface is anticipated to form but below the free liquid surface of the organic liquid phase when the settler compartment is filled.
4. The apparatus of claim 1, wherein the first weir inlet opening has a height and a location within said front wall of said first weir, and at least a portion of said front wall of said first weir is vertically adjustable such that the height or location of said inlet opening can be adjusted.
5. The apparatus of claim 1, wherein said first partition has a length and said

second partition has a length that is longer than the length of said first partition.

6. The apparatus of claim 5, wherein said second partition has a top located at about a level corresponding with the organic free liquid surface when said settler compartment is filled but below said settler compartment top.

7. The apparatus of claim 5, further comprising an adjustable lip rotatably coupled to said second partition.

8. The apparatus of claim 1, further comprising a lip protruding from said front wall of said first weir and located above said inlet opening.

9. The apparatus of claim 1, wherein the bottom of said first weir has a front side and a back side and is set at an angle to said settler compartment bottom such that the bottom rear side of said first weir is closer to said settler compartment bottom than the bottom front end of said organic weir.

10. The apparatus of claim 9, further comprising a lip protruding from said first weir bottom toward said settler compartment bottom.

11. The apparatus of claim 1, further comprising an incline plate, and wherein the first weir has an interior and said incline plate protrudes from said front wall of said first weir into the interior of said first weir and toward said settler compartment top.

12. The apparatus of claim 11, wherein said incline plate is coupled to said front wall at an angle of about 45 degrees.

13. The apparatus of claim 1, wherein:

 said settler compartment has a back side and said front wall of said first weir has a left side and a right side and the left side of said first weir is located at a first distance from the back side of said settler compartment and the right side of said first weir is located at a second distance from the back side of said settler compartment, and wherein the first distance and the second distance are not the

same.

14. The apparatus of claim 1, wherein said settler compartment has a left side and said front wall of said first liquid phase weir has a front side, and wherein an angle is formed by the front side of said front wall and said settler compartment left side at the location where said front wall is attached to said settler compartment, the angle ranging from about 75 degrees to about 105 degrees.

15. The apparatus of claim 14, wherein the angle ranges from about 87 to about 93 degrees.

16. The apparatus of claim 15, wherein the angle ranges from about 87 to about 89 degrees or from about 91 to about 93 degrees.

17. The apparatus of claim 1, further comprises a riser located at the bottom of the first liquid phase weir.

18. The apparatus of claim 17, further comprising a sump, and wherein the organic weir has a lowest point, said sump being located at the lowest point of said organic weir.

19. The apparatus system of claim 18, wherein the riser includes a tap for draining collected liquid for feeding or recycling to waste.

20. An apparatus for liquid-liquid extraction, comprising:
a compartment means for coalescing an organic phase from an aqueous phase;

a first weir means for collecting said coalesced organic phase located within said compartment means; and,

a second weir means for collecting said coalesced aqueous phase located within said compartment means adjacent said first weir means,
wherein said first weir means includes an inlet opening means for reducing air entrainment.

21. The apparatus of claim 20, wherein said second weir means comprises a labyrinth means for enabling at least a portion of entrained organic phase to rise into a quiescent portion of said labyrinth means.
22. The apparatus of claim 20, further comprising means for upwardly directing at least a portion of fluid flowing into said first weir means.
23. The apparatus of claim 20, further comprising means for directing at least a portion of entrained organic phase away from said second weir means.
24. The apparatus of claim 20, further comprising a means for varying at least one of the height or location of said inlet opening.
25. The apparatus of claim 21, further comprising adjustable lip means coupled to said labyrinth means for reducing splash.
26. A method for solvent extraction, comprising:
mixing an organic liquid system with an aqueous liquid system,
coalescing the mixed organic and aqueous liquid systems into an organic phase having a free liquid surface and an aqueous phase; and,
collecting the organic phase in an organic weir and the aqueous phase in an aqueous weir, wherein the organic weir and aqueous weir are part of a settler compartment, the organic weir includes a front wall with an inlet opening located below the organic phase free liquid surface, and the aqueous weir includes a labyrinth section for enabling at least a portion of the organic phase entrained in the aqueous phase to separate from the aqueous phase by rising into a quiescent portion of the labyrinth section.